The effect of time pressure on referential overspecification

Koolen, R.; Gatt, A.; van Gompel, R.P.G.; Krahmer, E.; van Deemter, K.

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Speakers often produce definite referring expressions that are overspecified. For example, they may refer to a chair as "the green chair" in a situation where only one chair is present. Many factors have been found to induce overspecification, for example that speakers rely on quick heuristics during the attribute selection process, and that they thus prefer to include perceptually salient attributes such as color. After all, salient attributes are easily and quickly perceived by the visual system.

We argue that the use of heuristics suggests the existence of a two-stage model of attribute selection. Firstly, there is the early stage, where perceptually salient attributes are selected irrespective of whether they rule out any of the distractor objects in the scene. Secondly, there is the later stage, which is basically an object-by-object scan of the scene to see if there are any distractors left. The early is stage is speaker-oriented, while the later stage is more listener-oriented (Arnold, 2008).

To find evidence for such a two-stage model, we performed a reference production experiment with a manipulation of Time Pressure. Half of the speakers took part in the self-paced condition, and took as much time as needed to inspect the scene and to describe the target. The other half of the speakers took part in the system-paced condition and performed their task under time pressure: although they could as well take as much time as needed to describe a target, the visual scenes disappeared automatically after 1000 milliseconds for each trial. Within participants, we manipulated the visual scenes in terms of the attributes that were required to identify the target (color; size; color or size).

We expected to find that speakers are more likely to overspecify their referring expressions in the system-paced condition than in the self-paced condition. This expectation was indeed borne out by the data: irrespective of the attributes that were required in a particular scene, redundant modifiers were more frequent in the system-paced condition (40.7%) than in the self-paced condition (31.3%), $\beta = 0.72$; $SE = 0.57$; $p < .05$. Thus, under pressure, speakers did not seem to have enough time to take the addressee perspective into account (Horton & Keysar, 1996), and mainly included attributes that simply pop out of the scene. We regard our results as evidence for a two-stage model of attribute selection, akin to recent computational models of attribute selection (e.g., Mitchell et al., 2013).